Clarion

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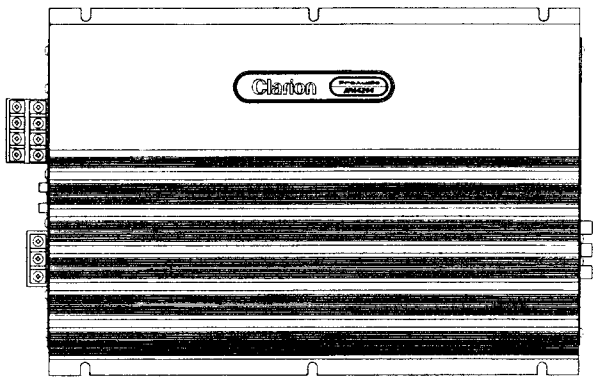
Service Manual



90wx4 Channel Power Amplifier

Model ***APA4204***

(GA-973B/GA-973E)

■ SPECIFICATIONS

Maximum output:	90W×4
Rated Output:	50W×4 (4-channel mode) (20Hz-20kHz,0.04%,4Ω,with 4-channel simultaneous output) 50W×2+130w×1(3-channel) 130W×2(2-channel mode)
Frequency Response:	10-50,000Hz
Harmonic Distortion:	0.04%(20Hz-20kHz, 4-channel mode, 50W×4 simultaneous output)
S/N Ratio:	103dB
Applicable Speaker impedance:	4Ω(2Ω-8Ω)
Input Sensitivity RCA Input:	200mV-5,000mV
Low-Pass Filter Cut-off Frequency:	50Hz-200Hz, -12dB/Oct
Power Source Voltage:	14.4V
Ground:	Negative
Power Consumption:	29A (with 50Wx4 rated output) 0.75A (amplifier ON, no input)
External dimensions:	230 (W)x50(H)x330(D)mm
Weight:	3.6kg

※ Specification and design are subject to change without notice for further improvement.

■ FEATURES

1. Built-in strong power supply
2. Design emphasizing sound quality
3. Diversified functions
4. Built-in protection circuit
5. Low-heat design

■ NOTE

1. When making a connection with a speaker of low input, be careful not to set the gain control CH1/2 and CH3/4 to an excessive level position.
2. When setting the channel mode and low-pass filter selector switches, to secure turn off the power of the source unit.
3. We cannot supply PWB with component parts in principle. When a circuit on PWB has failure, please repair it by component parts base. Parts which are not mentioned in service manual are not supplied.

■ COMPONENTS

GA-973B-51/GA-973E-51

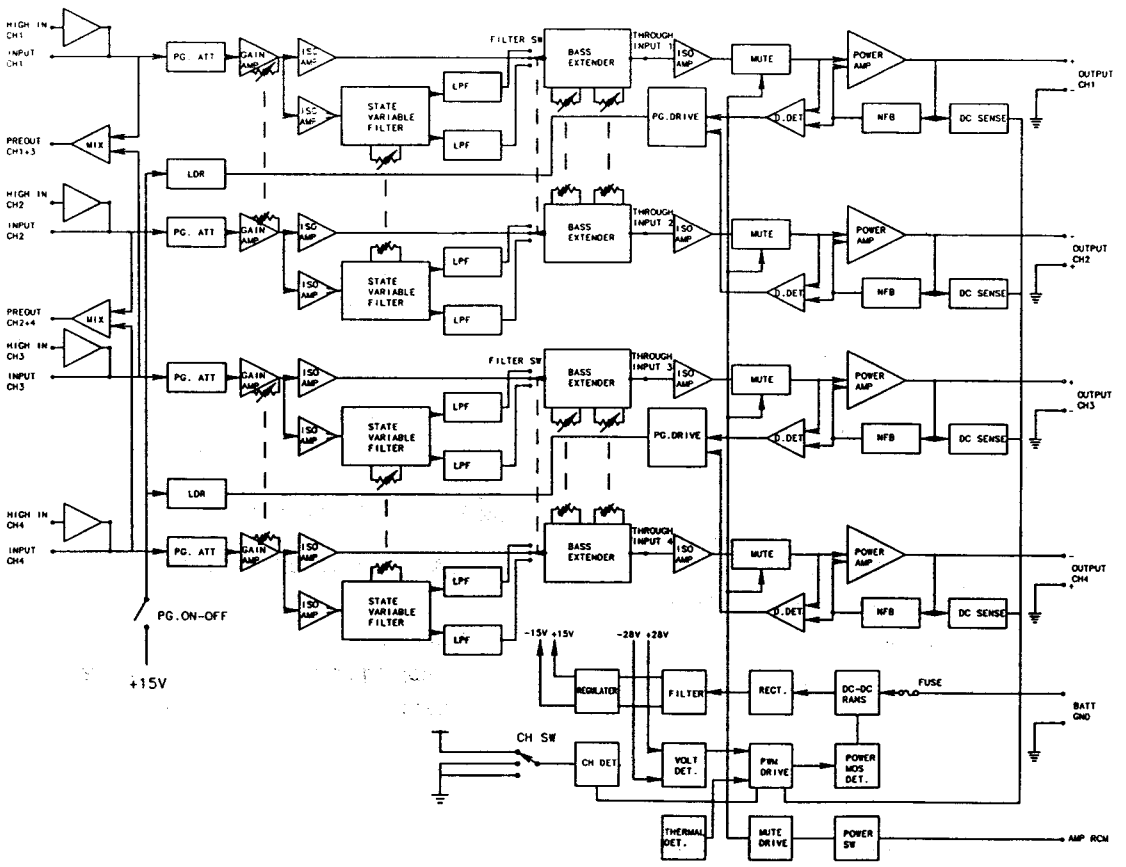
Main unit	----------	1
Tapping screw	700-4020-77	6
Extension lead	854-6334-60	1

■ To engineers in charge of repair or inspection of our products.

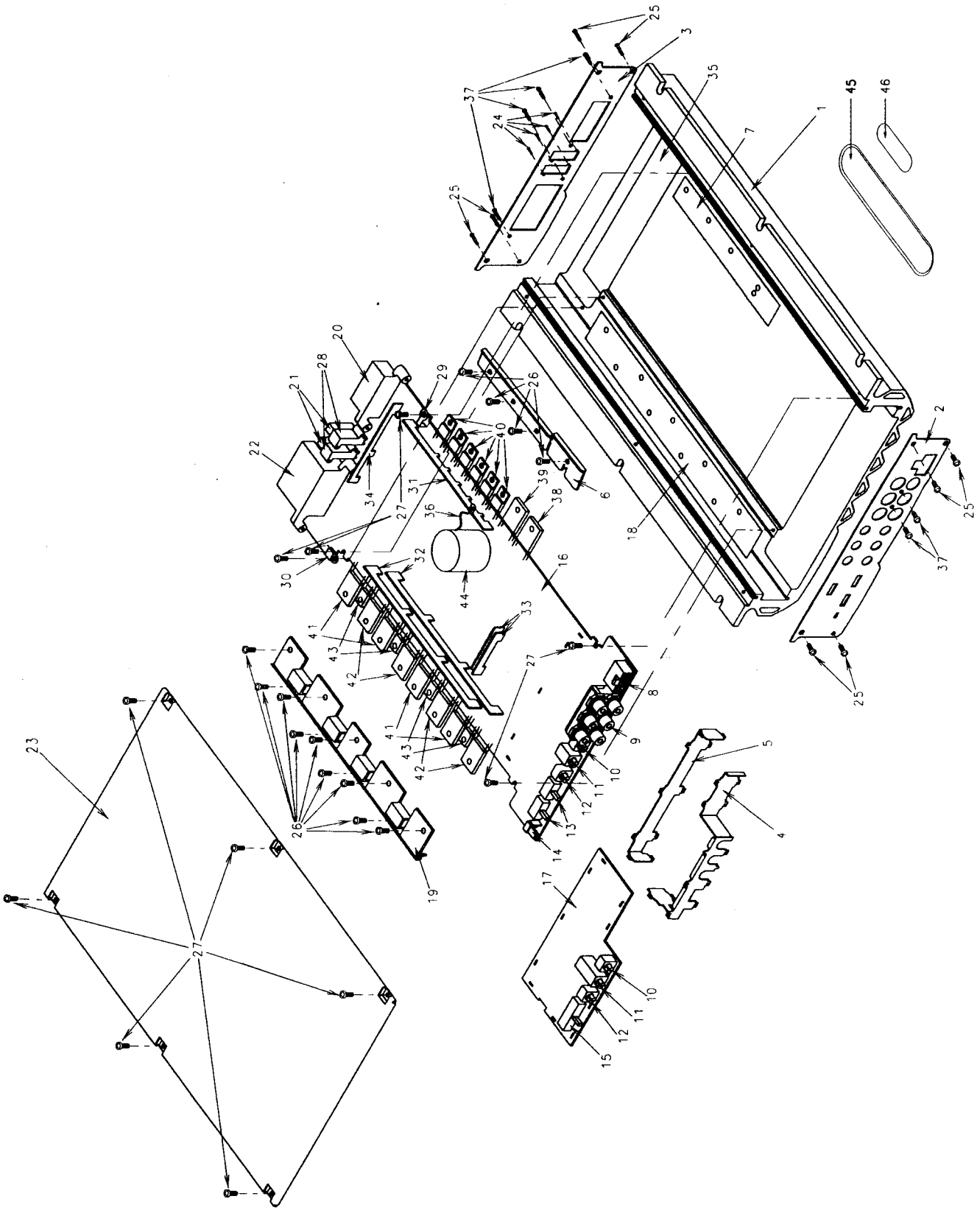
Before repair or inspection,make sure to follow the instructions so that customers and Engineers in charge of repair or inspection can avoid suffering any risk or injury.

1. Use specified parts.
   The system uses parts with special safety features against fire and voltage. Use only parts with equivalent characteristics when replacing them.
   The use of unspecified parts shall be regarded as remodeling for which we shall not be liable.The onus of product liability (PL) shall not be our responsibility in cases where an accident or failure is as a result of unspecified parts being used.
2. Place the parts and wiring back in their original positions after replacement or re-wiring.
   For proper circuit construction, use of insulation tubes, bonding, gaps to PWB, etc, is involved. The wiring connection and routing to the PWB are specially planned using clamps to keep away from heated and high voltage parts. Ensure that they are placed back in their original positions after repair or inspection.
   If extended damage is caused due to negligence during repair, the legal responsibility shall be with the repairing company.
3. Check for safety after repair.
   Check that the screws, parts and wires are put back securely in their original position after repair. Ensure for safety reasons there is no possibility of secondary problems around the repaired spots.
   If extended damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.
4. Caution in removal and making wiring connection to the parts for the automobile.
   Disconnect the battery terminal after turning the ignition key off. If wrong wiring connections are made with the battery connected, a short circuit and/or fire may occur.
   If extensive damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.
5. Cautions regarding chips.
   Do not reuse removed chips even when no abnormality is observed in their appearance. Always replace them with new ones. (The chip parts include resistors, capacitors, diodes, transistors, etc). The negative pole of tantalum capacitors is highly susceptible to heat, so use special care when replacing them and check the operation afterwards.
6. Cautions in handling flexible PWB.
   Before working with a soldering iron, make sure that the iron tip temperature is around 270°C. Take care not to apply the iron tip repeatedly (more than three times) to the same patterns. Also take care not to apply the tip with force.
7. Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

■ BLOCK DIAGRAM



■EXPLODED VIEW • PARTS LIST



NO.	PART NO.	DESCRIPTION	Q'TY
1	313-1785-00	HEAT SINK	1
2	331-2887-00	END PANEL	1
3	331-2888-00	END PANEL	1
4	331-2889-00	PWB HOLDER	1
5	331-2890-00	PWB HOLDER	1
6	331-1836-10	MTG BRACKET	1
7	347-5262-10	INSULATOR	1
8	074-9005-08	OUTLET SOCKET (8P)	1
9	075-0381-00	6P PIN JACK	1
10	016-9002-00	VR W/SHAFT	2
11	016-9003-00	VR W/SHAFT	2
12	016-9900-46	VR W/SHAFT	2
13	013-5101-04	SLIDE SWITCH	2
14	001-7807-00	LED	1
15	013-5101-05	SLIDE SWITCH	1
16	039-1609-00	MAIN PWB (Without compoments)	1
17	039-1610-00	SUB PWB (Without compoments)	1
18	347-5261-10	INSULATOR	1
19	331-2380-00	MTG BRACKET	1
20	073-0770-00	3P TERMINAL BOARD	1
21	060-0057-59	FUSE 25A	2
22	073-0769-00	8P TERMENAL BOARD	1

NO.	PART NO.	DESCRIPTION	Q'TY
23	304-0467-00	LOWER COVER	1
24	704-2008-17	TAP SCREW	4
25	704-3010-17	TAP SCREW	8
26	716-1756-10	SCREW	13
27	716-1753-10	SCREW	11
28	077-0091-00	FUSE RECEPTICLE	2
29	073-0727-0A	GROUND LUG	1
30	002-0223-01	POSISTOR	1
31	331-2891-00	BUSS BAR	1
32	331-2382-00	BUSS BAR	2
33	331-2892-00	BUSS BAR	2
34	331-2893-00	BUSS BAR	1
35	347-6288-00	INSULATOR	1
36	800-0204-00	VINYL-COAT-WIRE	1
37	716-1883-00	SCREW	6
38	001-0653-0B	DIODE	1
39	001-0653-0A	DIODE	1
40	125-8004-50	TRANSISTOR	6
41	102-5198-00	TRANSISTOR	4
42	100-1941-00	TRANSISTOR	4
43	102-3620-00	TRANSISTOR	4
44	331-1838-00	SHIELD CASE	1
45	378-0529-00	BADGE (CLARION)	1
46	290-7812-00	LABEL (APA4204)	1

■ELECTRICAL PARTS LIST

Note: Several different parts of the same reference number are alternative parts. One of those parts is used in the set.

Main PWB Section (B1)

REF No.	PART No.	DESCRIPTION
C 1	182-1063-32	16V-10μF
C 2	176-4711-00	470pF
C 3	182-3363-43	25V-33μF
C 4	176-1501-00	15pF
C 5	182-3363-43	25V-33μF
C 6	176-1501-00	15pF
C 7	182-3363-43	25V-33μF
C 8	176-1501-00	15pF
C 9	182-3363-43	25V-33μF
C 10	182-3363-43	25V-33μF
C 11	176-1501-00	15pF
C 12	173-1542-10	0.15μF
C 13	173-1542-10	0.15μF
C 14	182-3363-43	25V-33μF
C 15	182-3363-43	25V-33μF
C 25	172-2241-10	0.22μF
C 26	172-2241-10	0.22μF
C 27	176-1501-00	15pF
C 29	182-3363-43	25V-33μF
C 50	176-1501-00	15pF
C 51	176-1501-00	15pF
C 52	182-3363-43	25V-33μF
C 53	176-3301-00	33pF
C 54	176-3301-00	33pF
C 55	176-2201-00	22pF
C 56	176-2201-00	22pF
C 57	183-1053-62	50V-1μF
C 58	173-1042-10	0.1μF
C 59	173-1042-10	0.1μF
C 60	176-1512-00	150pF
C 61	176-1512-00	150pF
C 62	173-3332-10	0.033μF
C 101	182-1063-32	16V-10μF
C 102	176-4711-00	470pF
C 103	182-3363-43	25V-33μF
C 104	176-1501-00	15pF
C 105	182-3363-43	25V-33μF
C 106	176-1501-00	15pF
C 107	182-3363-43	25V-33μF
C 108	176-1501-00	15pF
C 109	182-3363-43	25V-33μF
C 110	182-3363-43	25V-33μF
C 111	176-1501-00	15pF
C 112	173-1542-10	0.15μF
C 113	173-1542-10	0.15μF
C 114	182-3363-43	25V-33μF
C 115	182-3363-43	25V-33μF
C 125	172-2241-10	0.22μF
C 126	172-2241-10	0.22μF
C 127	176-1501-00	15pF
C 129	182-3363-43	25V-33μF
C 136	176-1501-00	15pF
C 150	176-1501-00	15pF
C 151	176-1501-00	15pF
C 152	182-3363-43	25V-33μF
C 153	176-3301-00	33pF
C 154	176-3301-00	33pF
C 155	176-2201-00	22pF
C 156	176-2201-00	22pF
C 157	183-1053-62	50V-1μF
C 158	173-1042-10	0.1μF
C 159	173-1042-10	0.1μF
C 160	176-1512-00	150pF
C 161	176-1512-00	150pF
C 162	173-3332-10	0.033μF
C 201	182-1063-32	16V-10μF
C 250	176-1501-00	15pF
C 251	176-1501-00	15pF
C 252	182-3363-43	25V-33μF
C 253	176-3301-00	33pF
C 254	176-3301-00	33pF
C 255	176-2201-00	22pF
C 256	176-2201-00	22pF
C 257	183-1053-62	50V-1μF
C 258	173-1042-10	0.1μF
C 259	173-1042-10	0.1μF
C 260	176-1512-00	150pF
C 261	176-1512-00	150pF
C 262	173-3332-10	0.033μF
C 301	182-1063-32	15v-10μF
C 336	176-1501-00	15pF
C 350	176-1501-00	15pF
C 351	176-1501-00	15pF
C 352	182-3363-43	25V-33μF
C 353	176-3301-00	33pF
C 354	176-3301-00	33pF
C 355	176-2201-00	22pF
C 356	176-2201-00	22pF
C 357	183-1053-62	50V-1μF
C 358	173-1042-10	0.1μF
C 359	173-1042-10	0.1μF
C 360	176-1512-00	150μF
C 361	176-1512-00	150μF
C 362	173-3332-10	0.033μF
C 400	042-9019-00	16V-4700μF
C 401	042-9019-00	16V-4700μF
C 404	173-1042-10	0.1μF
C 410	042-9006-00	35V-4700μF
C 411	042-9006-00	35V-4700μF
C 412	182-3363-43	25V-33μF
C 413	182-3363-43	25V-33μF
C 420	182-4763-32	16V-47μF
C 421	182-4763-32	16V-47μF
C 424	182-4763-32	16V-47μF
C 425	182-4763-32	16V-47μF
C 426	182-4763-32	16V-47μF
C 427	182-4763-32	16V-47μF
C 428	182-4763-32	16V-47μF
C 429	182-4763-32	16V-47μF
C 500	183-1053-62	50V-1μF
C 501	182-4763-32	16V-47μF
C 510	176-1512-00	150pF
C 511	173-1032-10	0.01μF
C 512	173-1042-10	0.1μF
C 513	182-4763-22	10V-47μF
C 514	182-4763-22	10V-47μF
C 520	176-3301-00	330pF
C 530	176-3301-00	330pF
C 550	183-1053-62	50V-1μF
C 551	182-4763-32	16V-47μF
C 552	183-1053-62	50V-1μF
C 553	182-2273-13	6.3V-220μF
C 554	182-2273-13	6.3V-220μF
C 590	183-1053-62	50V-1μF
C 601	182-3363-43	25V-33μF
C 602	182-3363-43	25V-33μF
C 603	176-1501-00	15pF
C 620	173-1032-10	0.001μF
C 701	182-3363-43	25V-33μF
C 702	182-3363-43	25V-33μF
C 703	176-1501-00	15pF
C 800	173-1042-10	0.1μF
C 900	182-1063-32	16V-10μF
C 901	182-1063-32	16V-10μF
C 902	176-1501-00	15pF
C 903	176-1501-00	15pF
C 910	182-1063-32	16V-10μF
C 911	182-1063-32	16V-10μF
C 912	176-1501-00	15pF
C 913	176-1501-00	15pF
C 920	182-1063-32	16V-10μF
C 921	182-1063-32	16V-10μF
C 922	176-1501-00	15pF
C 923	176-1501-00	15pF
C 930	182-1063-32	16V-10μF
C 931	182-1063-32	16V-10μF
C 932	176-1501-00	15pF
C 933	176-1501-00	15pF
D 90	001-0294-00	1SS133T
D 190	001-0294-00	1SS133T
D 290	001-0294-00	1SS133T
D 390	001-0294-00	1SS133T
D 400	001-0651-0A	RM4AM
D 410	001-0653-0A	FMG32S
D 411	001-0653-0B	FMG32R
D 412	001-0376-67	MTZJ-16C
D 413	001-0376-67	MTZJ-16C
D 430	001-7807-00	LED
D 500	001-0188-01	1SS1885A
D 510	001-0294-00	1SS133T
D 511	001-0294-00	1SS133T
D 550	001-0376-27	MTZJ-4.7C
D 551	001-0294-00	1SS133T
D 552	001-0376-27	MTZJ-4.7C
D 553	001-0294-00	1SS133T
D 554	001-0294-00	1SS133T
D 555	001-0188-01	1SS1885A
L 70	010-2313-0A	0.1μH
L 170	010-2313-0A	0.1μH
L 270	010-2313-0A	0.1μH
L 370	010-2313-0A	0.1μH
L 400	009-0671-00	150μH
L 410	010-9012-00	80μH
L 411	010-9012-00	80μH
R 1	117-2211-10	220Ω
R 2	117-4731-10	47kΩ
R 3	117-6811-10	680Ω
R 4	117-1031-10	10kΩ
R 5	117-1031-10	10kΩ
R 6	117-1031-10	10kΩ

REF No.	PART No.	DESCRIPTION
R 7	117-1031-10	10kΩ
R 8	117-1031-10	10kΩ
R 9	117-1031-10	10kΩ
R 10	117-1031-10	10kΩ
R 11	117-1011-10	100Ω
R 12	117-1031-10	10kΩ
R 13	117-1031-10	10kΩ
R 14	117-1031-10	10kΩ
R 15	117-4721-10	4.7kΩ
R 16	117-1031-10	10kΩ
R 17	117-1131-10	11kΩ
R 18	117-4721-10	4.7kΩ
R 19	117-1031-10	10kΩ
R 20	117-1031-10	10kΩ
R 21	117-1011-10	100Ω
R 22	117-1011-10	100Ω
R 25	117-8221-10	8.2kΩ
R 26	117-2031-10	20kΩ
R 27	117-8221-10	8.2kΩ
R 28	117-8221-10	8.2kΩ
R 29	117-1221-10	1.2kΩ
R 30	117-2741-10	270kΩ
R 31	117-1011-10	100Ω
R 40	117-1031-10	10kΩ
R 50	117-1021-10	1kΩ
R 51	117-1031-10	10kΩ
R 52	117-3331-10	33kΩ
R 53	117-4721-10	4.7kΩ
R 54	117-3331-10	33kΩ
R 55	117-1131-10	11kΩ
R 56	117-1531-10	15kΩ
R 57	117-1531-10	15kΩ
R 58	117-4731-10	47kΩ
R 59	117-4731-10	47kΩ
R 60	117-6811-10	680Ω
R 61	117-6811-10	680Ω
R 62	117-4731-10	47kΩ
R 63	117-4731-10	47kΩ
R 64	111-1511-91	150Ω_1/4W
R 65	111-1511-91	150Ω_1/4W
R 66	111-5621-91	5.6kΩ_1/4W
R 67	111-3911-91	390Ω_1/4W
R 68	111-3321-91	3.3kΩ_1/4W
R 69	111-1011-91	100Ω_1/4W
R 70	111-1011-91	100Ω_1/4W
R 71	111-2211-91	220Ω_1/4W
R 72	111-4791-91	4.7Ω_1/4W
R 73	111-4791-91	4.7Ω_1/4W
R 74	032-0126-0A	0.1OHM×2
R 75	111-4791-91	4.7Ω_1/4W
R 76	111-4791-91	4.7Ω_1/4W
R 90	117-1511-10	150Ω
R 91	117-2221-10	2.2kΩ
R 92	117-1221-10	1.2kΩ
R 93	117-1531-10	15kΩ
R 101	117-2211-10	220Ω
R 102	117-4731-10	47kΩ
R 103	117-6811-10	680Ω
R 104	117-1031-10	10kΩ
R 105	117-1031-10	10kΩ

REF No.	PART No.	DESCRIPTION
R 106	117-1031-10	10kΩ
R 107	117-1031-10	10kΩ
R 108	117-1031-10	10kΩ
R 109	117-1031-10	10kΩ
R 110	117-1031-10	10kΩ
R 111	117-1011-10	100Ω
R 112	117-1031-10	10kΩ
R 113	117-1031-10	10kΩ
R 114	117-1031-10	10kΩ
R 115	117-4721-10	4.7kΩ
R 116	117-1031-10	10kΩ
R 117	117-1131-10	11kΩ
R 118	117-4721-10	4.7kΩ
R 119	117-1031-10	10kΩ
R 120	117-1031-10	10kΩ
R 121	117-1011-10	100Ω
R 122	117-1011-10	100Ω
R 125	117-8221-10	8.2kΩ
R 126	117-2031-10	20kΩ
R 127	117-8221-10	8.2kΩ
R 128	117-8221-10	8.2kΩ
R 129	117-1221-10	1.2kΩ
R 130	117-2741-10	270kΩ
R 131	117-1011-10	100Ω
R 136	117-1031-10	10kΩ
R 137	117-1031-10	10kΩ
R 138	117-1031-10	10kΩ
R 139	117-1031-10	10kΩ
R 140	117-1031-10	10kΩ
R 150	117-1021-10	1kΩ
R 151	117-1031-10	10kΩ
R 152	117-3331-10	33kΩ
R 153	117-4721-10	4.7kΩ
R 154	117-3331-10	33kΩ
R 155	117-1131-10	11kΩ
R 156	117-1531-10	15kΩ
R 157	117-1531-10	15kΩ
R 158	117-4731-10	47kΩ
R 159	117-4731-10	47kΩ
R 160	117-6811-10	680Ω
R 161	117-6811-10	680Ω
R 162	117-4731-10	47kΩ
R 163	117-4731-10	47kΩ
R 164	111-1511-91	150Ω_1/4W
R 165	111-1511-91	150Ω_1/4W
R 166	111-5621-91	5.6kΩ_1/4W
R 167	111-3911-91	390Ω_1/4W
R 168	111-3321-91	3.3kΩ_1/4W
R 169	111-1011-91	100Ω_1/4W
R 170	111-1011-91	100Ω_1/4W
R 171	111-2211-91	220Ω_1/4W
R 172	111-4791-91	4.7Ω_1/4W
R 173	111-4791-91	4.7Ω_1/4W
R 174	032-0126-0A	0.1OHM×2
R 175	111-4791-91	4.7Ω_1/4W
R 176	111-4791-91	4.7Ω_1/4W
R 190	117-1511-10	150Ω
R 191	117-2221-10	2.2kΩ
R 192	117-1221-10	1.2kΩ
R 193	117-1531-10	15kΩ

REF No.	PART No.	DESCRIPTION
R 240	117-1031-10	10kΩ
R 250	117-1021-10	1kΩ
R 251	117-1031-10	10kΩ
R 252	117-3331-10	33kΩ
R 253	117-4721-10	4.7kΩ
R 254	117-3331-10	33kΩ
R 255	117-1131-10	11kΩ
R 256	117-1531-10	15kΩ
R 257	117-1531-10	15kΩ
R 258	117-4731-10	47kΩ
R 259	117-4731-10	47kΩ
R 260	117-6811-10	680Ω
R 261	117-6811-10	680Ω
R 262	117-4731-10	47kΩ
R 263	117-4731-10	47kΩ
R 264	111-1511-91	150Ω_1/4W
R 265	111-1511-91	150Ω_1/4W
R 266	111-5621-91	5.6kΩ_1/4W
R 267	111-3911-91	390Ω_1/4W
R 268	111-3321-91	3.3kΩ_1/4W
R 269	111-1011-91	100Ω_1/4W
R 270	111-1011-91	100Ω_1/4W
R 271	111-2211-91	220Ω_1/4W
R 272	111-4791-91	4.7Ω_1/4W
R 273	111-4791-91	4.7Ω_1/4W
R 274	032-0126-0A	0.1OHM×2
R 275	111-4791-91	4.7Ω_1/4W
R 276	111-4791-91	4.7Ω_1/4W
R 290	117-1511-10	150Ω
R 291	117-2221-10	2.2kΩ
R 292	117-1221-10	1.2kΩ
R 293	117-1531-10	15kΩ
R 336	117-1031-10	10kΩ
R 337	117-1031-10	10kΩ
R 338	117-1031-10	10kΩ
R 340	117-1031-10	10kΩ
R 350	117-1021-10	1kΩ
R 351	117-1031-10	10kΩ
R 352	117-3331-10	33kΩ
R 353	117-4721-10	4.7kΩ
R 354	117-3331-10	33kΩ
R 355	117-1131-10	11kΩ
R 356	117-1531-10	15kΩ
R 357	117-1531-10	15kΩ
R 358	117-4731-10	47kΩ
R 359	117-4731-10	47kΩ
R 360	117-6811-10	680Ω
R 361	117-6811-10	680Ω
R 362	117-4731-10	47kΩ
R 363	117-4731-10	47kΩ
R 364	111-1511-91	150Ω_1/4W
R 365	111-1511-91	150Ω_1/4W
R 366	111-5621-91	5.6kΩ_1/4W
R 367	111-3911-91	390Ω_1/4W
R 368	111-3321-91	3.3kΩ_1/4W
R 369	111-1011-91	100Ω_1/4W
R 370	111-1011-91	100Ω_1/4W
R 371	111-2211-91	220Ω_1/4W
R 372	111-4791-91	4.7Ω_1/4W
R 373	111-4791-91	4.7Ω_1/4W

REF No.	PART No.	DESCRIPTION
R 374	032-0126-0A	0.1OHM×2
R 375	111-4791-91	4.7Ω_1/4W
R 376	111-4791-91	4.7Ω_1/4W
R 390	117-1511-10	150Ω
R 391	117-2221-10	2.2kΩ
R 392	117-1221-10	1.2kΩ
R 393	111-2211-10	15kΩ
R 410	032-9007-02	82Ω_2W
R 411	032-9007-02	82Ω_2W
R 412	111-1021-91	1kΩ_1/4W
R 413	111-1021-91	1kΩ_1/4W
R 420	111-1001-91	10Ω_1/4W
R 421	111-1001-91	10Ω_1/4W
R 430	111-1231-91	12kΩ_1/4W
R 500	117-5631-10	56kΩ
R 501	117-6821-10	6.8kΩ
R 502	117-2221-10	2.2kΩ
R 503	117-4721-10	4.7kΩ
R 504	111-4791-91	4.7Ω_1/4W
R 511	032-0087-58	47kΩ_1%
R 512	111-1001-91	10Ω_1/4W
R 513	117-2221-10	2.2kΩ
R 514	117-1041-10	100kΩ
R 515	117-4731-10	47kΩ
R 516	117-4731-10	47kΩ
R 520	117-1021-10	1kΩ
R 521	117-4721-10	4.7kΩ
R 522	117-1011-10	100Ω
R 523	117-4701-10	47Ω
R 524	117-4701-10	47Ω
R 525	117-4701-10	47Ω
R 526	117-1021-10	1kΩ
R 530	117-1021-10	1kΩ
R 531	117-4721-10	4.7kΩ
R 532	117-1011-10	100Ω
R 533	117-4701-10	47Ω
R 534	117-4701-10	47Ω
R 535	117-4701-10	47Ω
R 536	117-1021-10	1kΩ
R 540	117-4721-10	4.7kΩ
R 541	117-2721-10	2.7kΩ
R 542	117-2211-10	220Ω
R 543	117-4701-10	47Ω
R 544	117-4721-10	4.7kΩ
R 550	117-2231-10	22kΩ
R 551	117-2221-10	2.2kΩ
R 552	117-4721-10	4.7kΩ
R 553	117-3921-10	3.9kΩ
R 554	117-3331-10	33kΩ
R 555	117-2731-10	27kΩ
R 556	117-1031-10	10kΩ
R 557	117-1021-10	1kΩ
R 558	117-1041-10	100kΩ
R 560	111-1001-91	10Ω_1/4W
R 561	032-0087-58	4.7kΩ_1%
R 562	032-0087-61	10kΩ_1%
R 563	111-6811-91	680Ω
R 564	032-0087-61	10kΩ_1%
R 565	032-0087-63	56kΩ_1%
R 566	032-0087-61	10kΩ_1%

REF No.	PART No.	DESCRIPTION
R 567	032-0087-61	10kΩ_1%
R 580	117-1031-10	10kΩ
R 581	117-1531-10	15kΩ
R 582	117-1041-10	100kΩ
R 590	117-1021-10	1kΩ
R 591	117-4721-10	4.7kΩ
R 592	117-1531-10	15kΩ
R 593	117-1041-10	100kΩ
R 595	117-1031-10	10kΩ
R 601	117-1041-10	100kΩ
R 602	117-4731-10	47kΩ
R 603	117-1041-10	100kΩ
R 604	117-1041-10	100kΩ
R 605	117-1041-10	100kΩ
R 606	117-1041-10	100kΩ
R 607	117-4731-10	47kΩ
R 608	117-1021-10	1kΩ
R 620	117-6811-10	680Ω
R 701	117-1041-10	100kΩ
R 702	117-4731-10	47kΩ
R 703	117-1041-10	100kΩ
R 704	117-1041-10	100kΩ
R 705	117-1041-10	100kΩ
R 706	117-1041-10	100kΩ
R 707	117-4731-10	47kΩ
R 708	117-1021-10	1kΩ
R 800	117-1021-10	1kΩ
R 900	032-9002-00	82Ω_2W
R 901	117-3331-10	33kΩ
R 902	117-3331-10	33kΩ
R 903	117-2731-10	27kΩ
R 904	117-2731-10	27kΩ
R 905	117-4731-10	47kΩ
R 906	117-3331-10	33kΩ
R 910	032-9002-00	82Ω_2W
R 911	117-3331-10	33kΩ
R 912	117-3331-10	33kΩ
R 913	117-2731-10	27kΩ
R 914	117-2731-10	27kΩ
R 915	117-4731-10	47kΩ
R 916	117-3331-10	33kΩ
R 920	032-9002-00	82Ω_2W
R 921	117-3331-10	33kΩ
R 922	117-3331-10	33kΩ
R 923	117-2731-10	27kΩ
R 924	117-2731-10	27kΩ
R 925	117-4731-10	47kΩ
R 926	117-3331-10	33kΩ
R 930	032-9002-00	82Ω_2W
R 931	117-3331-10	33kΩ
R 932	117-3331-10	33kΩ
R 933	117-2731-10	27kΩ
R 934	117-2731-10	27kΩ
R 935	117-4731-10	47kΩ
R 936	117-3331-10	33kΩ
Q 40	102-3792-00	2SC3792
Q 50	100-1145-2A	2SA1145
Q 51	102-2705-2A	2SC2705
Q 52	102-3620-00	2SC3620
Q 53	103-0600-0A	2SD600K

REF No.	PART No.	DESCRIPTION
Q 54	101-0631-0A	2SB631K
Q 55	102-5198-00	2SC5198
Q 56	100-1941-00	2SA1941
Q 90	102-2412-00	2SC2412
Q 140	102-3792-00	2SC3792
Q 150	100-1145-2A	2SA1145
Q 151	102-2705-2A	2SC2705
Q 152	102-3620-00	2SC3620
Q 153	103-0600-0A	2SD600K
Q 154	101-0631-0A	2SB631K
Q 155	102-5198-00	2SC5198
Q 156	100-1941-00	2SA1941
Q 190	102-2412-00	2SC2412
Q 240	102-3792-00	2SC3792
Q 250	100-1145-2A	2SA1145
Q 251	102-2705-2A	2SC2705
Q 252	102-3620-00	2SC3620
Q 253	103-0600-0A	2SD600K
Q 254	101-0631-0A	2SB631K
Q 255	102-5198-00	2SC5198
Q 256	100-1941-00	2SA1941
Q 290	102-2412-00	2SC2412
Q 340	102-3792-00	2SC3792
Q 350	100-1145-2A	2SA1145
Q 351	102-2705-2A	2SC2705
Q 352	100-3620-00	2SC3620
Q 353	103-0600-0A	2SD600K
Q 354	101-0631-0A	2SB631K
Q 355	102-5198-00	2SC5198
Q 356	100-1941-00	2SA1941
Q 390	102-2412-00	2SC2412
Q 410	103-0600-0A	2SD600K
Q 411	101-0631-0A	2SB631K
Q 500	102-2412-00	2SC2412
Q 501	100-1015-50	2SA1015
Q 520	102-2412-00	2SC2412
Q 521	100-1298-00	2SA1298
Q 522	125-8004-50	RFP45N06
Q 523	125-8004-50	RFP45N06
Q 524	125-8004-50	RFP45N06
Q 530	102-2412-00	2SC2412
Q 531	100-1298-00	2SA1298
Q 532	125-8004-50	RFP45N06
Q 533	125-8004-50	RFP45N06
Q 534	125-8004-50	RFP45N06
Q 550	102-2412-00	2SC2412
Q 551	102-2412-00	2SC2412
Q 560	100-1048-00	2SA1048
Q 570	100-1298-00	2SA1298
Q 580	102-2412-00	2SC2412
Q 590	100-1298-00	2SA1298
Q 591	102-2412-00	2SC2412
T 410	007-9003-00	POWER TRANSFORMER 4×12T
TH 580	002-0223-01	TH90DEG
U 1	051-1904-90	IC_UPC4570
U 2	051-1904-90	IC_UPC4570
U 3	051-1904-90	IC_UPC4570
U 4	051-1904-90	IC_UPC4570

REF No.	PART No.	DESCRIPTION
U 5	051-1904-90	IC_UPC4570
U 8	051-1904-90	IC_UPC4570
U 103	051-1904-90	IC_UPC4570
U 104	051-1904-90	IC_UPC4570
U 105	051-1904-90	IC_UPC4570

REF No.	PART No.	DESCRIPTION
U 107	051-1904-90	IC_UPC4570
U 208	051-1904-90	IC_UPC4570
U 510	051-0749-01	IC_CA3524E
U 540	051-1904-90	IC_UPC4570
U 601	051-1904-90	IC_UPC4570

REF No.	PART No.	DESCRIPTION
U 602	051-1904-90	IC_UPC4570
U 900	051-1904-90	IC_UPC4570
U 920	051-1904-90	IC_UPC4570

Sub PWB Section (B2)

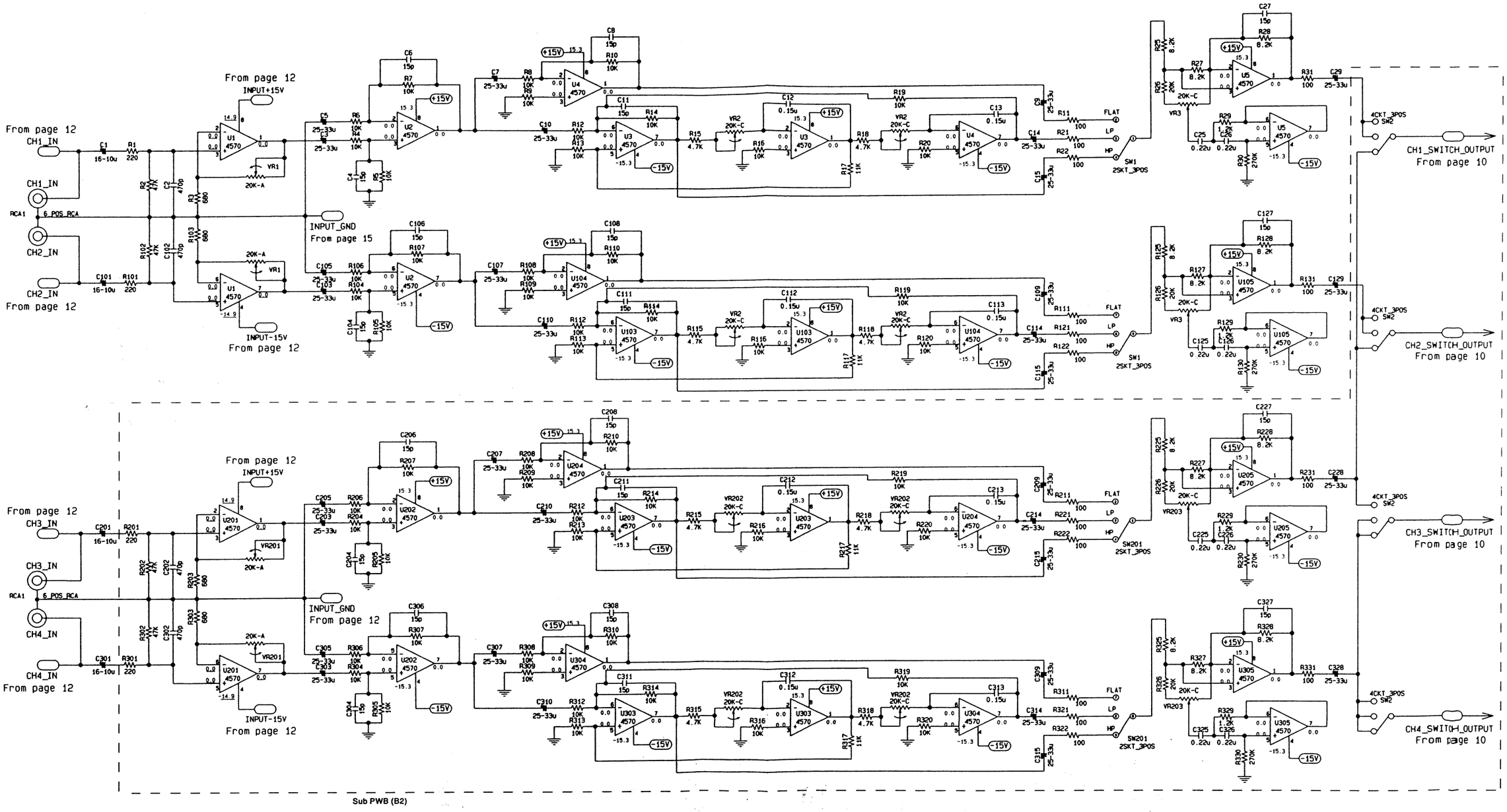
REF No.	PART No.	DESCRIPTION
C 202	176-4711-00	470pF
C 203	182-3363-43	25V-33μF
C 204	176-1501-00	15pF
C 205	182-3363-43	25V-33μF
C 206	176-1501-00	15pF
C 207	182-3363-43	25V-33μF
C 208	176-1501-00	15pF
C 209	182-3363-43	25V-33μF
C 210	182-3363-43	25V-33μF
C 211	176-1501-00	15pF
C 212	173-1542-10	0.15μF
C 213	173-1542-10	0.15μF
C 214	182-3363-43	25V-33μF
C 215	182-3363-43	25V-33μF
C 225	172-2241-10	0.22μF
C 226	172-2241-10	0.22μF
C 227	176-1501-00	15pF
C 228	182-3363-43	25V-33μF
C 302	176-4711-00	470pF
C 303	182-3363-43	25V-33μF
C 304	176-1501-00	15pF
C 305	182-3363-43	25V-33μF
C 306	176-1501-00	15pF
C 307	182-3363-43	25V-33μF
C 308	176-1501-00	15pF
C 309	182-3363-43	25V-33μF
C 310	182-3363-43	25V-33μF
C 311	176-1501-00	15pF
C 312	173-1542-10	0.15μF
C 313	173-1542-10	0.15μF
C 314	182-3363-43	25V-33μF
C 315	182-3363-43	25V-33μF
C 325	172-2241-10	0.22μF
C 326	172-2241-10	0.22μF

REF No.	PART No.	DESCRIPTION
C 327	176-1501-00	15pF
C 328	182-3363-43	25V-33μF
R 201	117-2211-10	220Ω
R 202	117-4731-10	47kΩ
R 203	117-6811-10	680Ω
R 204	117-1031-10	10kΩ
R 205	117-1031-10	10kΩ
R 206	117-1031-10	10kΩ
R 207	117-1031-10	10kΩ
R 208	117-1031-10	10kΩ
R 209	117-1031-10	10kΩ
R 210	117-1031-10	10kΩ
R 211	117-1011-10	100Ω
R 212	114-1031-10	10kΩ
R 213	114-1031-10	10kΩ
R 214	114-1031-10	10kΩ
R 215	117-4721-10	4.7kΩ
R 216	117-1031-10	10kΩ
R 217	117-1131-10	11kΩ
R 218	117-4721-10	4.7kΩ
R 219	117-1031-10	10kΩ
R 220	117-1031-10	10kΩ
R 221	117-1011-10	100Ω
R 222	117-1011-10	100Ω
R 225	117-8221-10	8.2kΩ
R 226	117-2031-10	20kΩ
R 227	117-8221-10	8.2kΩ
R 228	117-8221-10	8.2kΩ
R 229	117-1221-10	1.2kΩ
R 230	117-2741-10	270kΩ
R 231	117-1011-10	100Ω
R 301	117-2211-10	220Ω
R 302	117-4731-10	47kΩ
R 303	117-6811-10	680Ω

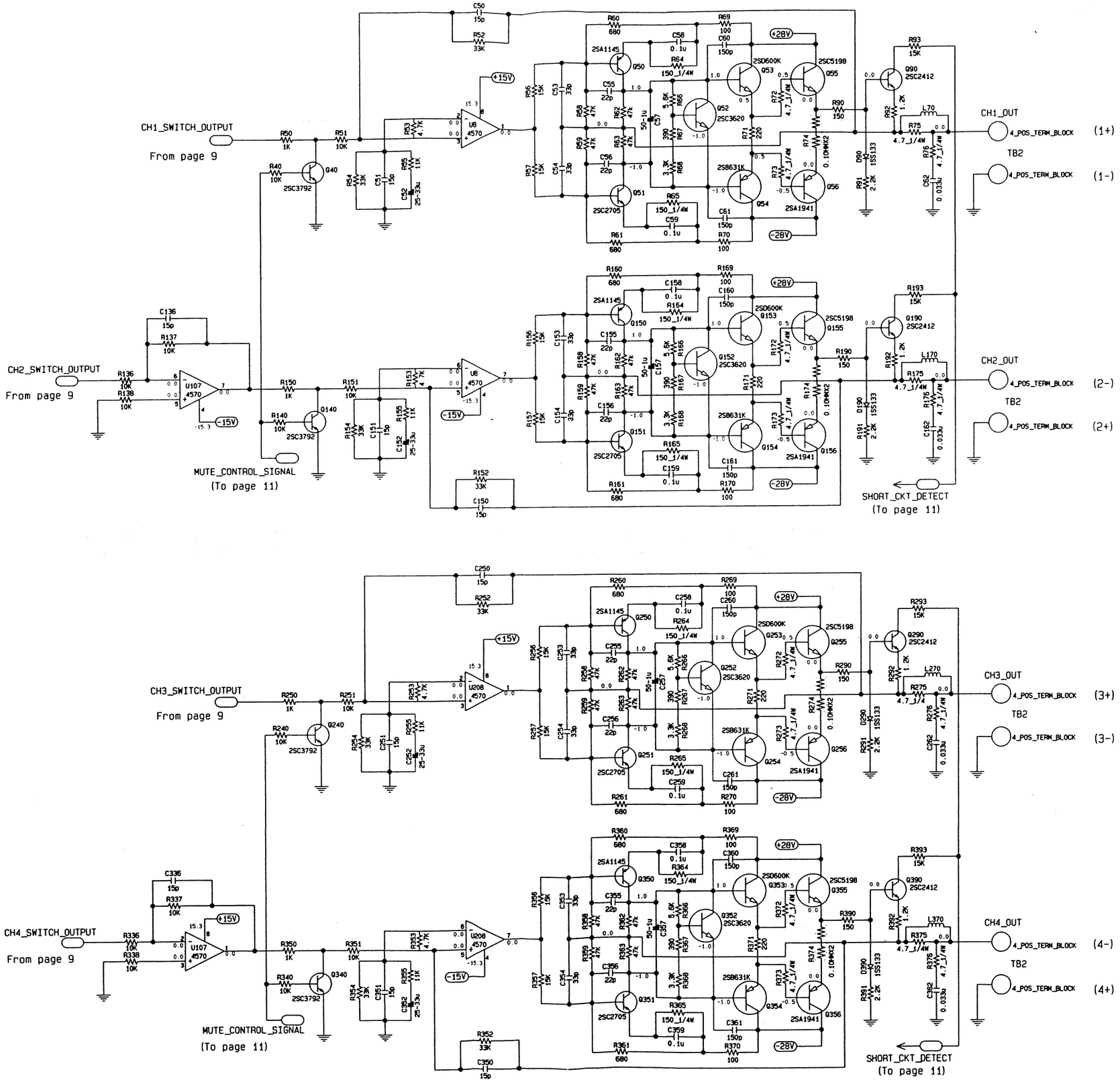
REF No.	PART No.	DESCRIPTION
R 304	117-1031-10	10kΩ
R 305	117-1031-10	10kΩ
R 306	117-1031-10	10kΩ
R 307	117-1031-10	10kΩ
R 308	117-1031-10	10kΩ
R 309	117-1031-10	10kΩ
R 310	117-1031-10	10kΩ
R 311	117-1011-10	100Ω
R 312	117-1031-10	10kΩ
R 313	117-1031-10	10kΩ
R 314	117-1031-10	10kΩ
R 315	117-4721-10	4.7kΩ
R 316	117-1031-10	10kΩ
R 317	117-1131-10	11kΩ
R 318	117-4721-10	4.7kΩ
R 319	117-1031-10	10kΩ
R 320	117-1031-10	10kΩ
R 321	117-1011-10	100Ω
R 322	117-1011-10	100Ω
R 325	117-8221-10	8.2kΩ
R 326	117-2031-10	20kΩ
R 327	117-8221-10	8.2kΩ
R 328	117-8221-10	8.2kΩ
R 329	117-1221-10	1.2kΩ
R 330	117-2741-10	270kΩ
R 331	117-1011-10	100Ω
U 201	051-1904-90	IC_UPC457O
U 202	051-1904-90	IC_UPC457O
U 203	051-1904-90	IC_UPC457O
U 204	051-1904-90	IC_UPC457O
U 205	051-1904-90	IC_UPC457O
U 303	051-1904-90	IC_UPC457O
U 304	051-1904-90	IC_UPC457O
U 305	051-1904-90	IC_UPC457O

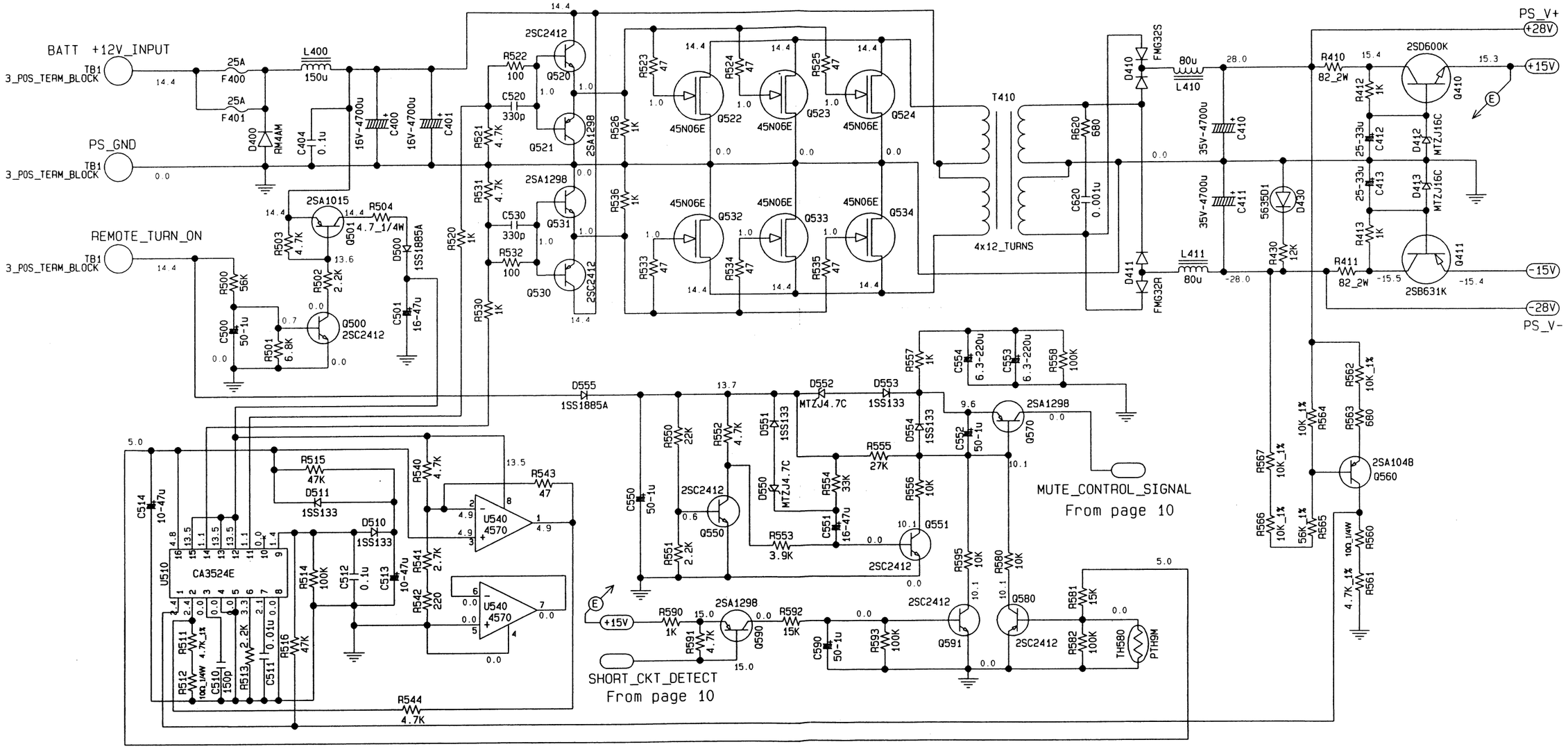
■ CIRCUIT DIAGRAM

Main PWB (1/4) Section (B1) & Sub PWB (B2)

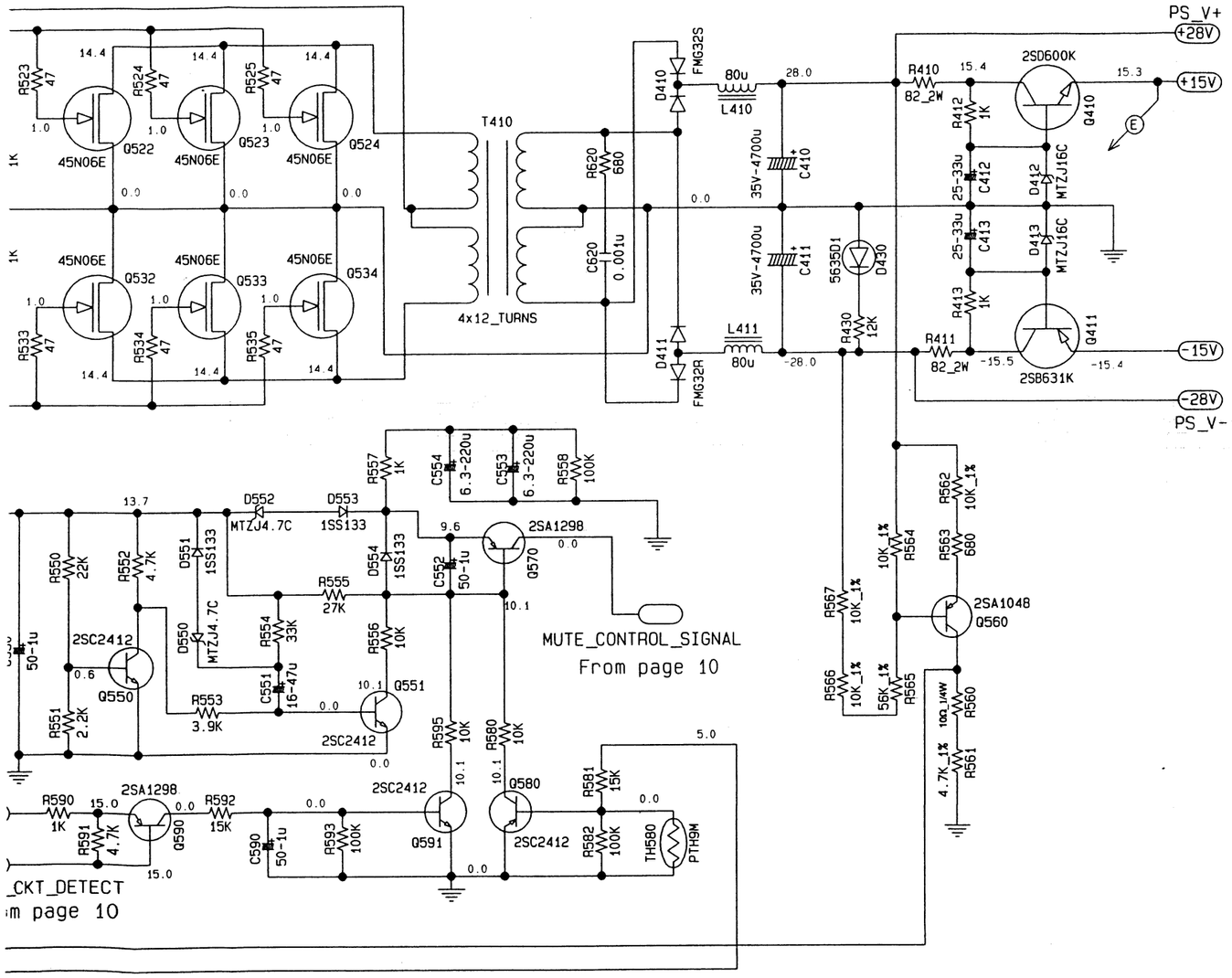


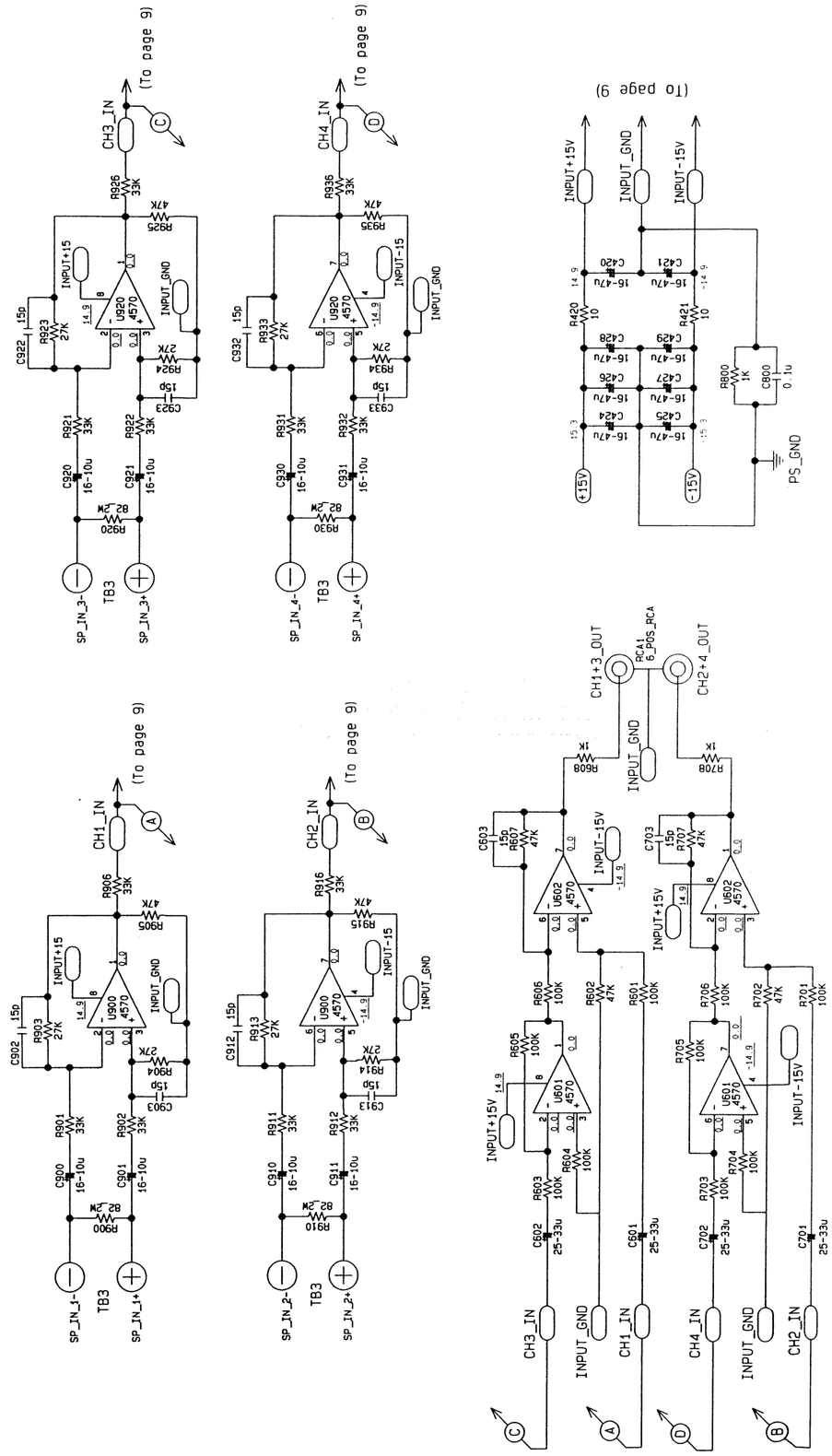
Main PWB (2/4) Section (B1)




BATT +12V_INPUT
TB1
3_POS_TERM_BLOCK
25A
F400
25A
F401
L400
150u
D400
RM4AM
C404
0.1u
16V-4700u
C400
16V-4700u
C401
PS_GND
REMOTE_TURN_ON
2SA1015
Q501
R503
4.7K
R504
4.7_1/4W
R500
56K
R502
2.2K
Q500
2SC2412
C500
50-1u
R501
6.8K
D500
1SS1885A
C501
16-47u
2SC2412
Q520
R522
100
C520
330p
Q521
2SA1298
R521
4.7K
R531
4.7K
C530
330p
R532
100
Q530
2SC2412
R520
1K
R530
1K
2SA1298
Q531
R526
1K
R536
1K
45N06E
Q522
Q523
Q524
Q532
Q533
Q534
R523
47
R524
47
R525
47
R533
47
R534
47
R535
47
T410
4x12_TURNS
R620
680
C620
0.001u
D410
FMG32S
D411
FMG32R
80u
L410
L411
80u
35V-4700u
C410
35V-4700u
C411
563501
D430
R430
12K
PS_V+
+28V
+15V
-15V
-28V
PS_V-
R410
82_2W
R411
82_2W
2SD600K
Q410
2SB631K
Q411
R412
1K
R413
1K
C412
25-33u
C413
25-33u
D412
MTZJ16C
D413
MTZJ16C
R562
10K_1%
R563
680
R564
10K_1%
R565
56K_1%
R566
10K_1%
R567
10K_1%
2SA1048
Q560
R560
10Ω_1/4W
R561
4.7K_1%
D555
1SS1885A
D552
MTZJ4.7C
D553
1SS133
R557
1K
C554
6.3-220u
C553
6.3-220u
R558
100K
D551
1SS133
D554
1SS133
R550
22K
R552
4.7K
R555
27K
C552
50-1u
2SA1298
Q570
MUTE_CONTROL_SIGNAL
From page 10
D550
MTZJ4.7C
R554
33K
R556
10K
2SC2412
Q550
C550
50-1u
R551
2.2K
R553
3.9K
C551
16-47u
Q551
2SC2412
R595
10K
R580
10K
2SC2412
Q580
R581
15K
R582
100K
TH580
PTH9M
R590
1K
R591
4.7K
2SA1298
Q590
R592
15K
C590
50-1u
R593
100K
2SC2412
Q591
SHORT_CKT_DETECT
From page 10
U510
CA3524E
R511
4.7K_1%
R512
10Ω_1/4W
R513
2.2K
C510
150p
C511
0.01u
R514
100K
R516
47K
C512
0.1u
C513
10-47u
R515
47K
D511
1SS133
D510
1SS133
R540
4.7K
R541
2.7K
R542
220
U540
4570
R543
47
U540
4570
R544
4.7K
C514
10-47u

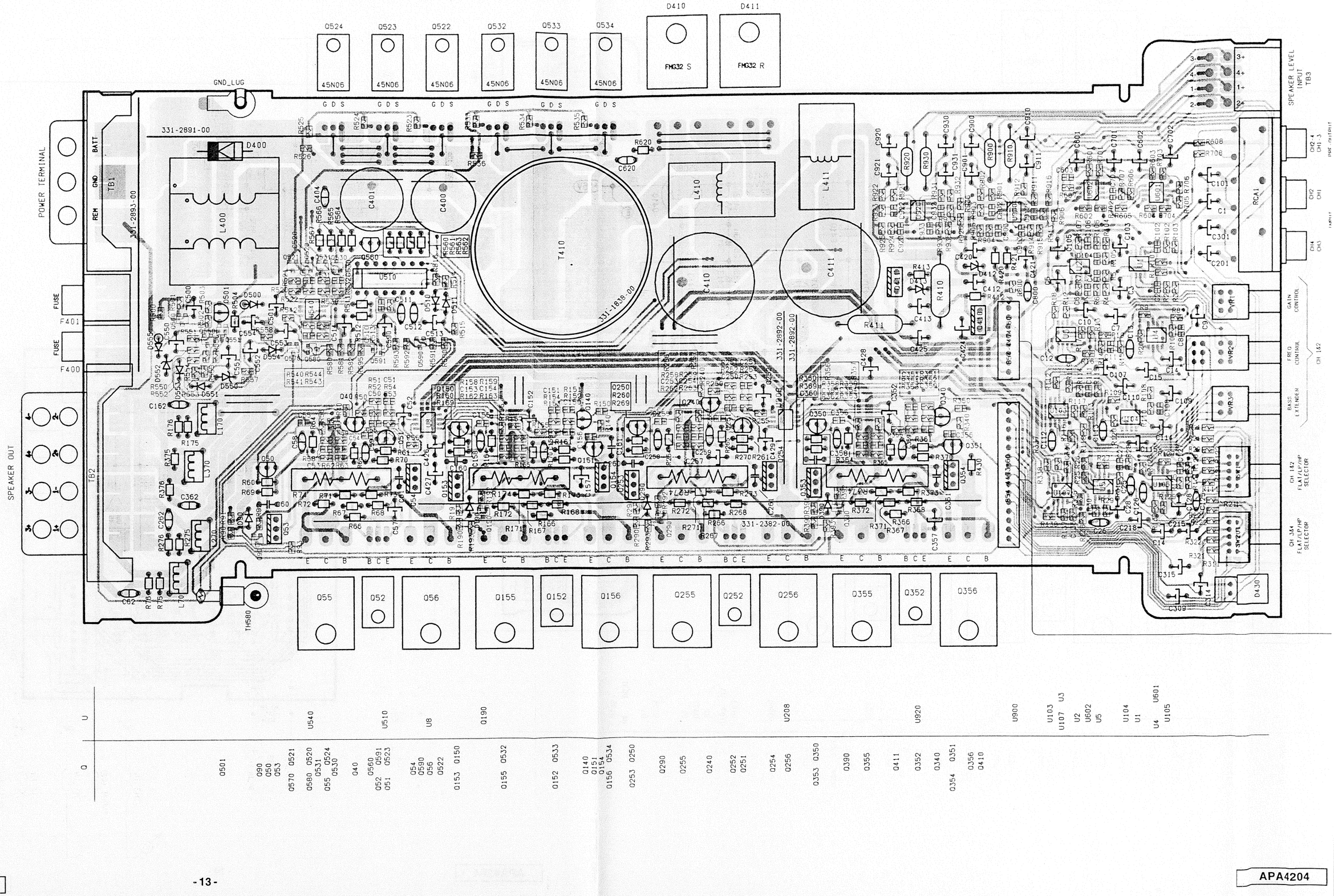
Main PWB (4/4) Section (B1)





PRINTED WIRING BOARD

Main PWB (B1)

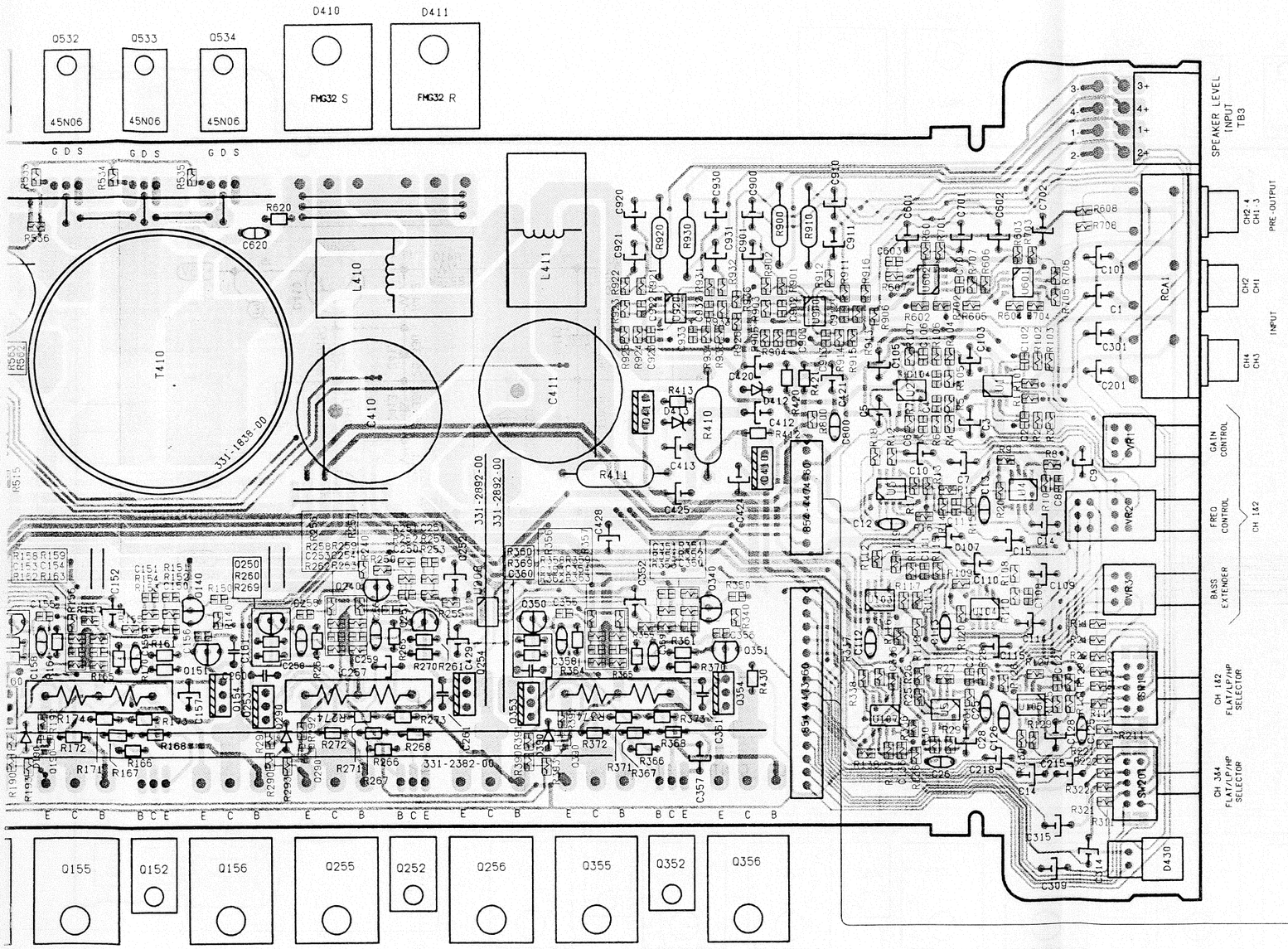


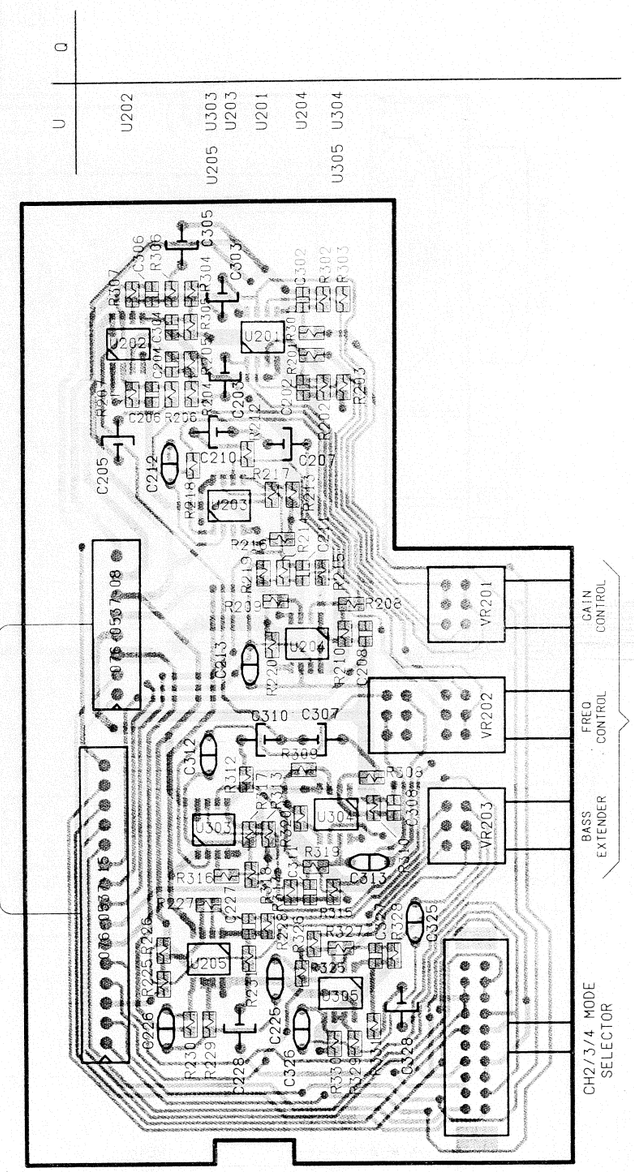
U

U540 U510 U8 Q190 U208 U920 U900 U103 U107 U3 U2 U602 U5 U104 U1 U4 U601 U105

Q

Q501 Q90 Q50 Q53 Q570 Q521 Q580 Q520 Q531 Q55 Q524 Q530 Q40 Q560 Q591 Q52 Q523 Q51 Q54 Q590 Q56 Q522 Q153 Q150 Q155 Q532 Q152 Q533 Q140 Q151 Q154 Q156 Q534 Q253 Q250 Q290 Q255 Q240 Q252 Q251 Q254 Q256 Q353 Q350 Q390 Q355 Q411 Q352 Q340 Q354 Q351 Q356 Q410





Q190

Q153 Q150
Q155 Q532
Q152 Q533
Q140
Q151
Q154
Q156 Q534
Q253 Q250
Q290
Q255
Q240
Q252
Q251
Q254
Q256
Q353 Q350
Q390
Q355
Q411
Q352
Q340
Q354 Q351
Q356
Q410

U208
U920
U900
U103
U107 U3
U2
U602
U5
U104
U1
U4 U601
U105